Louisiana Department of Environmental Quality (LDEQ)
Office of Environmental Services

STATEMENT OF BASIS

BASF Corporation
Polyols Unit and Chlorine/Caustic Unloading (CCU) Facility
Geismar, Ascension Parish, Louisiana
Agency Interest Number: 2049
Activity Number: PER20050008
Draft Permit 2427-V1

I. APPLICANT:

Company:
BASF Corporation
P.O. Box 457, Geismar, LA 70734-0457

Facility:
Polyols Unit and Chlorine/Caustic Unloading (CCU)
8404 River Road, Geismar, Ascension Parish, Louisiana
Approximate UTM coordinates are 692.436 kilometers East and 3342.058 kilometers North, Zone 15

II. FACILITY AND CURRENT PERMIT STATUS:

BASF Corporation, Geismar Facility, is an existing integrated chemical manufacturing facility that has been in operation over 25 years. Chemicals produced at the site include: acetylene, amine compounds, aniline, ethylene oxide, ethylene glycol, glyoxal, 1,4-butanediol, n-methyl pyrrolidone, toluene diisocyanate, tetrahydrofuran, polytetrahydrofuran, vinylpyrrolidone, polyvinylpyrrolidone, polyols, butyrolactone, surfactants, and methylene bis phenylisocyanate.

The Polyol Plant and Chlorine/Caustic Unloading (CCU) Facility is part of the Geismar Facility and currently operates under Permit No. 2427-V0, issued November 21, 2000.

The Polyol Plant consists of the Polyols Manufacturing Plant and the Chlorine/Caustic Unloading Facility. The Polyol Plant currently produces polyols (polyhydric alcohols) in a batch operation utilizing propylene oxide (PO) and/or ethylene oxide (EO) with an alcohol initiator using caustic as a catalyst. There are two existing production lines (GP-1 and GP-2) which will be modified as part of this project. The GP-2 Unit will be changed to use new base ingredients which will also eliminate the use of the solvent extraction process.

In addition, two new production lines (GP-3 and GP-4) will be installed. The operation of the new GP-3 Unit process will be similar to the GP-2 Unit except that solid base ingredients will not be used. The new GP-4 Unit process will operate in a continuous fashion. New storage tanks will be installed for additional raw materials and finished products. Production capacity is being increased from 264 MM lb/year from the operation of GP-1 and GP-2 production trains to 807 MM lbs/year when all four trains are operating.

A Part 70 permit addressing the Polyols Plant and Chlorine/Caustic Unloading (CCU) Facility has already been issued.

Permit #	Units or Sources	Date Issued
2427-V0	POLYOLS PLANT AND CCU FACILITY	11/21/2000

III. PROPOSED PERMIT / PROJECT INFORMATION:

Proposed Permit

A permit application and Emission Inventory Questionnaire (EIQ) dated April 29, 2005, were received requesting a Part 70 operating permit renewal and major modification, 2427-V1, for the Polyols Plant and Chlorine/Caustic Facility.

A notice requesting public comment on the proposed permit was published in *The Advocate*, Baton Rouge, Louisiana, on Friday, March 24, 2006; and *Gonzales Weekly*, Gonzales, Louisiana, on Friday, March 24, 2006. The proposed permit was also sent to US EPA Region VI.

The facility currently operates under Permit No. 2427-V0, issued November 21, 2000.

Project Description

Proposed changes to the Polyol Plant and CCU Facility include the following:

- A new Polyol Flare is being added.
- Two existing vapor recovery systems are being combined. Both currently vent to the atmosphere and are being re-routed to the new flare.
- The existing Oxide Scrubber Unit currently vents to the atmosphere and is being re-routed to the new flare.

- Two existing cooling towers, and one new cooling tower are being added to the permit.
- Hypochlorite storage, cooling tower inhibitor, and brine maker tanks will be added for cooling tower treatment.
- Two new pressurized PO spheres will be added, and will vent through an existing oxidizer or an existing flare.
- Two low-volatile amine storage tanks, and two base raw material storage tanks will be added.
- A total of 22 new polyol storage tanks will be added plus two existing storage tanks transferred from the EO/EG plant.
- The PS-30 Inhibitor Tank is being added to the permit as an Insignificant Activity
- Solids Vents is being added which includes two new storage silos, four new solids conveying systems equipped with dust collectors, and one solids blender.
- GP-3 Inhibitor Vent is being added.
- Three new low volatile acid storage tanks and one potassium hydroxide storage tank will be added.
- One new vacuum system will be added to G-2 Unit and will be vented to the existing oxide scrubber.
- The existing G-2 catalyst removal process will be connected to the G-1 Unit.
- Four new process vessels and two new vacuum systems will be added for the new G-3 Unit and will be vented to the existing oxide scrubber
- Seven new process vessels, two new stripping towers, and one vacuum system will be added for the new G-4 Unit and will be vented to the existing flare.
- Two new wastewater treatment vessels and a vacuum system which vent to the existing flare will be added.
- A new 7,900 gallon inhibitor storage tank has been added.
- The GP-1x Recovery System, which will vent to the Polyol Plant Flare, utilizes primarily toluene as a solvent, but can use n-hexane under certain circumstances. All emissions calculations are based on worst-case estimates of toluene emissions.

Permitted Air Emissions

The estimated emissions in tons per year for this Polyols Plant and Chlorine/Caustic Facility permit modification are as follows:

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Pollutant	Before	After	Change
PM_{10}	<0.01	8. 80	+8.80
SO_2	0.0	0.02	+0.02
NO_X	0.0	1.89	+1.89
CO	0.0	10.30	+10.30
VOC *	38.00	14.13	-23.87

*VOC LAC 33:III Chapter 51 Toxic Air Pollutants (TAPs):

Pollutant	Before	After	Change
Ethylene Glycol	0.01	0.13	+0.12
Ethylene Oxide	0.81	1.18	+0.37
Hexane	24.30	0.25	-24.05
Monochlorobenzene	0.0	0.85	+0.85
Propylene Oxide	6.15	4.04	-2.11
Toluene	12.66	2.45	-10.21
Total	38.00(capped)	8.90	-29.10

Non-VOC LAC 33:III Chapter 51 Toxic Air Pollutants (TAPs):

Pollutant	Before	After	Change
Chlorine	0.03	0.13	+0.10
Hydrochloric Acid	0.50	4.00	+3.50
Total	0.53	4.13	+3.60

*Other VOC (TPY): 5.23

Prevention of Significant Deterioration Applicability

This permit was reviewed for compliance with 40 CFR 70, the Louisiana Air Quality Regulations, New Source Performance Standards (NSPS), and National Emission Standards for Hazardous Air Pollutants (NESHAP).

There is no physical change in the method of operation, therefore the modifications/revisions proposed in this application do not trigger PSD review. Prevention of Significant Deterioration (PSD) does not apply.

MACT requirements

The BASF Geismar Site is a major source of toxic air pollutants (TAPs). Facility-wide emissions of 1,3-butadiene, benzene, formaldehyde, and n-Hexane are emitted in quantities above the Minimum Emission Rate (MER) and are controlled by Maximum Achievable Control Technology (MACT) in accordance with Compliance Plan No. 92067, approved November 1, 1994.

The flares act as a control device for several vessels and tanks. The flares are operated in accordance with 40 CFR 60 Subpart A and 40 CFR 63 Subpart A to ensure proper destruction of HAPs and TAPs.

Air Modeling Analysis

Not Applicable.

General Condition XVII Activities

Not Applicable.

Insignificant Activities

All Insignificant Activities are authorized under LAC 33:III.501.B.5. For a list of approved Insignificant Activities, refer to Section IX of the proposed Part 70 permit.

IV. Permit Shields

No permit shield has been granted.

V. Periodic Monitoring

The Monitoring, Reporting, and Recordkeeping necessary to demonstrate compliance with the applicable terms, conditions and standards are provided in the Facility Specific Requirements Section of the proposed permit.

VI. Applicability and Exemptions of Selected Subject Items

A complete listing of applicable and exempted state and federal air quality requirements for each subject item is included in the proposed Part 70 permit, Table 2.

VII. Streamlined Requirements

Not Applicable.

VIII. Glossary

Maximum Achievable Control Technology (MACT) - The maximum degree of reduction in emissions of each air pollutant subject to LAC 33:III.Chapter 51 (including a prohibition on such emissions, where achievable) that the administrative authority, upon review of submitted MACT compliance plans and other relevant information and taking into consideration the cost of achieving such emission reduction, as well as any non-air-quality health and environmental impacts and energy requirements, determines is achievable through application of measures, processes, methods, systems, or techniques.

Nitrogen Oxides (NO_x) - Compounds whose molecules consists of nitrogen and oxygen.

Part 70 Operating Permit- Also referred to as a Title V permit, required for major sources as defined in 40 CFR 70 and LAC 33:III.507. Major sources include, but are not limited to, sources which have the potential to emit: $\geq$ 10 tons per year of any toxic air pollutant; $\geq$ 25 tons of total toxic air pollutants; and $\geq$ 100 tons per year of regulated pollutants (unless regulated solely under 112(r) of the Clean Air Act) (25 tons per year for sources in non-attainment parishes).

PM_{10}- Particulate matter with an aerodynamic diameter less than or equal to a nominal 10 micrometers as measured by the method in Title 40, Code of Federal Regulations, Part 50, Appendix J.

Potential to Emit (PTE) - The maximum capacity of a stationary source to emit any air pollutant under its physical and operational design.

Prevention of Significant Deterioration (PSD) – A New Source Review permitting program for major sources in geographic areas that meet the National Ambient Air Quality Standards (NAAQS) at 40 CFR Part 50. PSD requirements are designed to ensure that the air quality in attainment areas will not degrade.

Sulfur Dioxide (SO_2) – An oxide of sulphur.

Title V Permit – See Part 70 Operating Permit.

Volatile Organic Compound (VOC) - Any organic compound which participates in atmospheric photochemical reactions; that is, any organic compound other than those which the administrator of the U.S. Environmental Protection Agency designates as having negligible photochemical reactivity.